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ORIENTATION FOR COLLEGE--A FOLLOW-UP STUDY.

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EXPERIMENTAL DATA WERE GATHERED ON THE RELATIONSHIPS BETWEEN PRECOLLEGE ORIENTATION AND ACTUAL PERFORMANCE IN COLLEGE. SPECIFICALLY, THREE APPROACHES WERE STUDIED--(1) AN INTENSIVE, 1-WEEK ORIENTATION EXPERIENCE HELD EARLY IN THE SUMMER PRECEDING COLLEGE, (2) THE TRADITIONAL FALL ORIENTATION PROGRAM, AND (3) NO ORIENTATION FOR COLLEGE. COLLEGE PERFORMANCES WHICH WERE ASSESSED WERE ACADEMIC ACHIEVEMENT, ENROLLMENT PERSISTENCE, AND COURSE OF STUDY STABILITY. THE HYPOTHESIS WAS THAT STUDENTS EXPOSED TO THE SUMMER ORIENTATION APPROACH WOULD EARN HIGHER GRADES, BE LESS INCLINED TO DROP OUT, AND BE MORE INCLINED TO A STABLE COURSE OF STUDY THAN WOULD STUDENTS EXPOSED TO THE OTHER APPROACHES. THE POPULATION FOR THE SUMMER APPROACH CONSISTED OF 51 HIGH SCHOOL GRADUATES FROM EASTERN WASHINGTON STATE WHO HAD ENROLLED IN 15 DIFFERENT COLLEGES AND UNIVERSITIES. THEY WERE MATCHED WITH CONTROL SUBJECTS ON (1) ATTENDANCE AT THE SAME COLLEGE, (2) PURSUANCE OF THE SAME COURSE OF STUDY, (3) HIGH SCHOOL GRADE POINT AVERAGE, (4) MENTAL ABILITY, (5) SEX, AND (6) SIZE OF HIGH SCHOOL ATTENDED. RESULTS INDICATED CURVE DIFFERENCES IN THE HYPOTHESIZED DIRECTION ON THE THREE MEASURES OF ACADEMIC ACHIEVEMENT, ENROLLMENT PERSISTENCE, AND STUDY STABILITY. GROUP DIFFERENCES NOTED IN MEAN GRADE POINT AVERAGE AND ENROLLMENT PERSISTENCE, HOWEVER, WERE NOT STATISTICALLY SIGNIFICANT. A SIGNIFICANT DIFFERENCE WAS FOUND BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS IN COURSE OF STUDY STABILITY. THE IMPLICATIONS OF THESE FINDINGS AND SUGGESTIONS FOR FURTHER RESEARCH WERE DISCUSSED IN THE REPORT. (HB)

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Orientation for College: A Follow-up Study

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Abstract

The purpose of this study was to provide experimental data on the relationships between pre-college orientation and later performance in college. Three levels of college orientation were studied: (1) Headstart on College -- an intensive, one week experience held early in the summer preceding college, (2) the traditional fall orientation program and (3) no orientation for college.

The measures of college performance employed to assess the effects of differential orientation were academic achievement, enrollment persistence in college and course of study stability.

It was hypothesized that Ss attending Headstart on College would earn higher grades, drop out of college less frequently and change courses of study fewer times than would matched subjects not participating in the program.

The population for the experiment was fifty-one high school graduates from eastern Washington who later enrolled in 15 different colleges and universities. They were matched on a "best fit" basis with control subjects according to the following criteria: (1) attendance at the same college, (2) pursuance of the same course of study, (3) high school grade point average, (4) mental ability, (5) sex and (6) size of high school attended.

The results of this study indicated differences in the hypothesized direction on all three measures although null hypotheses concerning academic achievement and enrollment persistence in college could not be rejected. A significant difference was found, however, between experimental and control groups in course of study stability. The implications of these findings as well as suggestions for further research are discussed in the report.

Purpose

As the related literature indicates (See Small Contract S-134, Appendix A) recent research has identified certain factors that influence attendance, achievement and adjustment in college. The number and variety of these studies indicate that enough investigation of the "needs, problems, and perplexities" of college students has been made to influence the nature of orientation programs.[1] At the same time, however, the relationship between orientation programs and college performance has not been established. Lifton, for example, states:

> the entire area of orientation is one in which there is a marked lack of definitive research. Although there are numerous surveys of existing practices, questions relating to the comparative effectiveness of different orientation techniques or to student growth and security or self knowledge, need to be explored in the future.[2]

Thus, the research which has been carried out has not demonstrated the validity of the formal orientation program in terms of the behavior of the college student.

The primary purpose of this study was to provide experimental data on certain gross parameters of behavior that might be related to participation in college orientation programs. A summer orientation program, "Headstart on College"; the traditional fall orientation program; and no orientation combined to provide a clear-cut independent variable (type of orientation) by means of which an experimental evaluation could be made. The dependent variables were academic achievement, persistence in college, and course of study stability.

Design and Hypotheses

Three levels of college orientation were studied: (1) Headstart on College - an intensive, one-week experience held early in the summer preceding college, at which time students participated in vocational testing and counseling, seminars on problems, of college adjustment and vocational choice, and personal counseling, (2) the traditional fall orientation program, and (3) no formal orientation for college.

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[1] Margaret E. Bennett, "Student Personnel Work: Orientation of Students," Encyclopedia of Educational Research, Walter S. Monroe, ed., (1950) 1303.

[2] Walter M. Lifton, "College and University Student Services: Orientation Programs," Enclyclopedia of Educational Research, Walter S. Monroe, ed., (1960), 304.

Four groups of matched pairs were constituted:

Group A: Subjects who participated in HOC and in a fall orientation program.

Group B: Subjects who participated in HOC but not in any formal fall orientation program.

Group C: Subjects who attend only a fall orientation program.

Group D: Subjects who attended neither HOC nor a fall orientation program.

Or schematically:

Groups:	A	B	C	D
HOC Program	x	x		
Fall Orientation	x		x	
No HOC Program			x	x
No Fall Orientation		x		x

Subjects within these groups were matched according to the following criteria:

(1) attendance at the same college or university
(2) pursuance of the same course of study
(3) grade point average in high school
(4) mental ability measurements
(5) sex
(6) size of high school attended

Utilizing the above criteria, subjects were matched on a "best fit" basis. Since it was not possible experimentally to include a sociological index as a matching variable, social class was derived from the father's occupation by means of the Duncal Socio-Economic Index and was controlled, as it related to final grade point average, by the analysis of covariance technique.

The parameters of college performance employed to assess the effects of differential orientation were:

(1) academic achievement (defined as grade-point average):
(2) persistence in college (defined as whether or not a subject completed the freshman year): and
(3) course of study stability (defined as whether or not a subject changed his course of study after his initial enrollment in college).

The following hypotheses were tested:

1. Subjects who participated in HOC would earn higher grade point averages than subjects not participating in HOC.

   (a) Subjects (Group A) who participated in HOC and in fall orientation programs would earn higher grades than subjects (Group C) who attend only the fall orientation.

   (b) Subjects (Group B) who participated in HOC and not in any formal fall orientation program would earn higher grades than subjects (Group D) who attended neither HOC nor fall orientation.

2. Fewer HOC subjects (Group A and Group B) would drop out of college before the end of the freshman year.

   (a) Fewer subjects from Group A would drop out than from Group C.

   (b) Fewer subjects from Group B would drop out than from Group D.

3. Subjects who participated in HOC would change their major courses of study fewer times than subjects who did not participate in HOC.

   (a) Fewer subjects from Group A would change major courses of study than from Group C.

   (b) Fewer subjects from Group B would change major courses of study than from Group D.

Results

The first hypothesis stated that the mean of the grade point averages at the end of the first year would be significantly higher for students attending HOC than for matched students not attending HOC. Furthermore, it was hypothesized that this difference would exist among institutions offering fall orientation programs (four year institutions -- Groups A and C) as well as among those not offering fall orientation programs (community or junior colleges -- Groups B and D).

Table 1 summarizes the covariance analysis for differences in end-of-year grade point averages of Groups A and C. "x" represents the variable socio-economic level and "y" the criterion variable mean grade point average. The null hypothesis tested was that no significant differences would exist between mean GPA's of subjects who attended HOC and those who did not attend HOC.

Table 1

ANALYSIS OF COVARIANCE OF MEAN GPA's
FOR SUBJECTS IN FOUR-YEAR INSTITUTIONS

Source	df	ss$_x$	Sum of Products	ss$_y$	ss'$_y$	df	ms'$_y$
Between Groups (A and C)	1	59.96	3.19	.18	.13	1	.13
Within Groups	84	55871.07	387.95	78.07	75.38	83	.91
Total	85	55931.03	391.14	78.25	75.51	84	

$$F = \frac{.13}{.91} = .14$$

An F-value of 3.96 was necessary to reject the null hypothesis at the .05 level. Therefore the null hypothesis was not rejected. The mean grade point average at the end of the freshmen year for students enrolled in four-year institutions who attended HOC did not differ significantly from the mean GPA of those who did not attend HOC.

Table 2 displays the analysis of covariance for students attending two-year institutions.

Table 2

ANALYSIS OF COVARIANCE OF MEAN GPA's ON SUBJECTS IN TWO-YEAR COLLEGES

Source	df	ssx	Sum of Products	ssy	ss'y	df	ms'y
Between Groups (B and D)	1	276.42	-2.57	.004	.08	1	.08
Within Groups	14	9109.50	57.93	3.700	3.33	13	.25
Total	15	10385.92	55.36	3.704	3.41	14	

$$F = \frac{.08}{.26} = .31$$

An F-value of 4.67 was necessary to reject the null hypothesis at the .05 level of confidence; therefore the hypothesis was not rejected. The mean grade point average at the end of the freshmen year for subjects enrolled in two-year institutions who attended HOC did not differ significantly from the mean GPA of those who did not attend HOC.

Appendix A lists end-of-year grade point averages and socio-economis indices for all subjects. For subjects in four-year institutions, the GPA's ranged from 0.00 to 3.47 in the experimental group (Group A) and from 0.00 to 3.58 in the control group (Group C). The mean for Group A was 2.04 and the mean for Group C was 1.95.

Among two-year college students the GPA's for the experimental group (Group B) ranged from 1.12 to 2.33; for control group (Group D) the range was from .82 to 2.29. The mean for Group B was 1.56 and for Group D, 1.59.

The second hypothesis stated that fewer HOC subjects would drop from college prior to completion of the freshmen year. The null hypothesis that there would be no significant difference in the enrollment status between experimental and control groups was tested at the end of the first term (semester or quarter) and at the end of the school year.

Table 3 displays the persistence in college of the subjects in the four groups at midterm and at the end of the year.

Table 3

PERSISTENCE IN COLLEGE

Group	N	Dropped 1st Term	Chi Square	Dropped End of Year	Chi Square
A(HOC - 4 yr Inst.)	43	3	.354	6	.324
B(no HOC - 4 yr Inst.)	43	4	n.s.	8	n.s.
C(HOC - 2 yr Inst.)	8	0		3	
D(no HOC - 2 yr Inst.)	8	3	. . .	5	. . .
A + B(HOC - all Inst.)	51	3	1.774	9	.928
C + D(no HOC - all Inst.)	51	7	n.s.	13	n.s.

Chi Square was computed for Groups A and C but N was insufficient to warrant the same analysis for Groups B and D. In addition to analyzing the difference between Groups A and C Table 3 summarizes the Chi Square values for all subjects (two and four-year institutions) combined.

In experimental groups A and B, comprised of subjects who attended HOC, fewer subjects did drop college than did subjects in the control groups. The differences were not statistically significant, however. The null hypothesis could not be rejected.

The third hypothesis stated that those students who attended HOC would have fewer course-of-study changes than would those matched students who did not attend HOC.

This hypothesis was tested in two ways -- both Chi Square techniques. To test internal stability, the McNemar Test for Significant Changes was employed. This test is based on the assumption that there are equal numbersof (1) students who have not decided upon a course of study at the time of enrollment, and who will choose a major after enrollment, as there are (2) students who have chosen a major at enrollment time and will change after enrollment. Although the assumption may not be perfectly accurate, it is used to determine levels of significance for comparative purposes. A choice of course may be considered at +, and the failure to choose or a change in choice may be considered a -.

Table 4 summarizes the results of this test.

Table 4

COURSE OF STUDY CHANGES AT MIDTERM AND END OF YEAR

Groups							
A				B			
Midterm		End of Year		Midterm		End of Year	
	After Enrollment		After Enrollment		After Enrollment		After Enrollment
	-	+	-	+	-	+	-	+
Before Enrollment	+ 2	30	+ 7	25	+ 0	6	+ 0	6
	- 10	1	- 11	0	- 2	0	- 2	0
	$Chi^2 = 0$ Not significant		$Chi^2 = 5.14$ Significant at .05 level		$Chi^2 = 0$ Not Significant Perfect Stability		$Chi^2 = 0$ Not Significant Perfect Stability	

Groups							
C				D			
Midterm		End of Year		Midterm		End of Year	
	After Enrollment		After Enrollment		After Enrollment		After Enrollment
	-	+	-	+	-	+	-	+
Before Enrollment	+ 8	25	+ 11	22	+ 2	5	+ 3	4
	- 10	0	- 10	0	- 1	0	- 1	0
	$Chi^2 = 6.125$ Significant at .05 level		$Chi^2 = 9.09$ Significant at .01 level		Chi^2 .5 Not Significant		$Chi^2 = 1.333$ Not Significant	

Only one person in the entire population who had not selected a course of study prior to enrollment did so during the freshman year. Regardless of orientation programs, subjects in all four groups who were undecided upon a course of study at the time of enrollment remained undecided throughout the freshman year.

The relationship between - + changes and + - changes became increasingly different for 3 of the 4 groups as the year progressed, but the differences became apparent more rapidly for the control groups C and D than they did for the experimental group A, largely because of the greater number of control group students who changed their courses of study. Perfect stability was disclosed in the experimental group B; those who were undecided in the beginning remained undecided, and those who had selected a course of study prior to enrollment did not change.

The next test comparatively analyzed course of study stability. "Undecideds" were excluded, and Chi Square was computed. The results are summarized in Table 5. Since Groups B and D had small N's they were included with A and C as experimental and control groups respectively for one of the tests.

Table 5

COURSE OF STUDY STABILITY

Group	N	Changed 1st Term	Chi Square	Changed End of Yr	Chi Square
A(HOC - 4 yr Inst.)	32	2	4.031	7	1.064
C(no HOC - 4 yr Inst.)	33	8	p. < .05	11	n.s.
B (HOC - 2 yr Inst.)	6	0		0	
D(no HOC - 2 yr Inst.)	7	2		3	
A+ B(HOC - all Inst)	65	2	5.843	7	2.722
C + D(no HOC - all Inst.)	13	10	p. < .05	14	p. < .10

After the "undecideds" had been eliminated, the null hypothesis that no difference would be found in course of study stability between those who attended HOC and those who did not was rejected at the .05 level of confidence in two of four tests and at the .10 level in the third test. At midterm, course of study stability was related to HOC participation (at the .05 level) for students at four-year institutions and for all students in all institutions. At the end of the year, the relationship persisted (at the .10 level) for the test involving all students. Thus, whether or not subjects changed their course of study in college appears to be related to whether or not they participated in Headstart on College.

Summary

This investigation studied the effects of three levels of college orientation on subsequent college performance along three dimensions of performance: (1) grade point average, (2) enrollment persistence, and (3) course of study stability. The population for the experiment were high school graduates from eastern Washington who enrolled in 15 different colleges and universities.

Grade Point Average.

The differences in the mean grade point average, although higher for subjects who attended HOC and then a four-year institution, were not statistically significant. One year may not be long enough to determine significance in this highly controlled manner.

Good controls were manifest in the apparently well matched subjects. The error variance by controlling socio-economic level -- a variable which has been frequently and consistently associated with success in college -- was reduced by only .02 for students in four-year institutions. Had the variable been ignored, the error variance would have been .93 ($\frac{ssy}{df}$ or $\frac{78.07}{84}$). By utilizing analysis of covariance, the error variance became .91. Literally, this fact indicates that the multiple correlation between the five matching variables and the end-of-year GPA was not substantially improved by adding a numerical equivalent of social class. The variable was almost completely accounted for in the "best-fit" matching process. This fact applied to Groups B and D also, whose error variance by controlling socio-economic level was changed from .26 to .25, a slightly higher percentage improvement than for Groups A and C.

Enrollment Persistence.

Although both experiemental groups displayed better "holding" qualities than did their control counterparts, the differences in dropout rate for one year were not significant. Since the trend is in the hypothesized direction, it suggests that greater differences might exist if these subjects were followed for at least one more year, and perhaps followed for four years.

Course of Study Stability.

The results indicate that attendance at HOC was significantly related to course of study stability. The uncontrolled variable of motivation to attend HOC could possibly affect GPA, but it is not likely to have affected course of study stability.

If anything, HOC students attended because they did not know what courses they wished to pursue. The early summer guidance HOC offered to the students, followed by a period of several weeks to reflect on this guidance suggests a possible explanation of the positive results. Certainly HOC counselors attempted to help the students to perceive alternate routes not previously known; and this examination of additional alternatives is designed to produce more rational decisions.[1]

The literature summarized in Small Contrct S-134, Appendix A, suggests that this finding (significant differences in course of study stability for subjects attending HOC) is the first experimentally controlled follow-up evidence of improved performance in college associated with a particular orientation program.

Implications for Additional Research

1. Since the findings in this study were in the hypothesized direction, the need exists to continue the experiment with the present subjects. A longitudinal dimension would allow for a clearer answer to the question: would differences in GPA, enrollment persistence, and course of study stability be apparent after two, three, or even four years?

2. An experimental design should be developed to evaluate an intensive, summer orientation program such as Headstart on College in a manner that will control for motivation. It is possible that performance differences between HOC subjects and their controls might be due to the characteristics that brought these subjects to attend HOC, and not necessarily to the effects of the program itself. This design could be implemented by accepting the first fifty applicants and refusing admittance to all others who apply for HOC. The rejected applicants would become an additional experimental group, and be matched with a control group in the manner of this experiment. This additional comparison would allow for determination of whether the qualities of motivation of these would be HOC participants are more closely related to college performance than is the HOC program itself. Specifications of this experimental design are detailed in The Validity of College Orientation Programs by W. H. Barber and O. L. Olson, a proposal submitted to U.S. Office of Education, 1965.

3. A need exists to test the exportability of the project. This could be accomplished by replicating this study at other colleges and universities. If better decision-making on the part of college enrollees is actually related to early summer orientation, the relationship should exist, regardless of the location of the orientation.

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[1]Waldrip, Donald R., "A Comparison of Individual and Group Processes in Certain Aspects of Rational Decision-Making, Unpublished Doctoral Dissertation (Colorado State College; 1961), p.47.

4. It is apparent that larger numbers of subjects are necessary for such an experiment. This requirement will be met in future studies because HOC has been expanded to attract and work with more students.

5. Once correlations are established between orientation and performance basic, hypothesis-generating research will need to be carried out on the intra-individual processes involved in the transition of students to the complex social system that exists in the college and university today. The research summarized above is in a sense quite primitive in that it has essentially ignored the question of changes in needs, values and attitudes of these subjects as influenced by orientation.

APPENDIX A

GRADE POINT AVERAGES AND SOCIO-ECONOMIC INDICES FOR STUDENTS OF TWO EXPERIMENTAL AND TWO CONTROL GROUPS

FOUR-YEAR COLLEGES OR UNIVERSITIES

	Group A Experimental		Group C Control			Group A Experimental		Group C Control	
No.	Socio-Economic Index (X)	Grade Point Average (Y)	Socio-Economic Index (X)	Grade Point Average (Y)	No.	Socio-Economic Index (X)	Grade Point Average (Y)	Socio-Economic Index (X)	Grade Point Average (Y)
	EASTERN WASHINGTON STATE COLLEGE					SEATTLE UNIVERSITY			
1.	61	1.90	61	1.21	25.	17	1.53	42	1.53
2.	62	1.40	62	0.00	26.	47	1.56	62	2.38
3.	40	2.72	40	1.53					
4.	15	2.94	19	2.65		SCRIPPS COLLEGE			
					27.	93	3.00	85	2.60
	GONZAGA UNIVERSITY								
5.	92	0.00	69	2.17		WASHINGTON STATE UNIVERSITY			
6.	19	.35	49	1.91	28.	92	2.44	92	1.92
7.	92	3.47	92	0.00	29.	44	2.63	78	3.49
8.	14	0.00	18	2.33	30.	47	2.13	42	2.25
9.	61	2.76	11	2.66	31.	65	2.30	84	3.20
10.	36	2.12	72	2.32	32.	84	1.89	66	2.09
11.	8	2.94	36	0.00	33.	76	2.61	15	3.58
12.	67	2.86	68	3.33	34.	51	0.00	51	2.24
13.	54	1.74	80	2.16	35.	24	1.90	66	2.50
14.	74	1.33	70	0.00	36.	66	3.08	66	2.25
15.	66	2.09	70	2.16	37.	85	3.13	37	2.11
16.	84	2.56	66	2.09	38.	14	2.68	14	2.23
17.	49	2.35	74	1.85	39.	44	2.62	61	2.30
18.	93	2.97	49	3.14					
						UNIVERSITY OF IDAHO			
	MONTANA STATE COLLEGE				40.	92	2.06	21	2.06
19.	72	3.20	47	2.47	41.	14	1.68	61	1.20
20.	66	2.17	36	2.67					
21.	14	0.00	14	1.24		UNIVERSITY OF OREGON			
					42.	86	2.02	22	.85
	MONTANA STATE UNIVERSITY								
22.	47	1.28	72	.86		UNIVERSITY OF THE PACIFIC			
					43.	93	2.64	93	2.27
	PACIFIC LUTHERAN UNIVERSITY								
23.	22	1.51	62	1.88	Σ	2434	87.56	2362	83.75
					M	56.60	2.04	54.93	1.95
	UNIVERSITY OF PORTLAND								
24.	92	1.00	67	.07		M_{X_T} = 55.77		M_{Y_T} = 1.99	

APPENDIX A (Cont'd)

COMMUNITY OR JUNIOR COLLEGES

	Group B		Group D	
	Experimental		Control	
No.	Socio-Economic Index (X)	Grade Point Average (Y)	Socio-Economic Index (X)	Grade Point Average (Y)
		NORTH IDAHO JUNIOR COLLEGE		
1.	93	1.89	47	2.29
		SPOKANE COMMUNITY COLLEGE		
2.	44	1.25	9	2.16
3.	47	2.33	53	1.38
4.	32	1.12	9	1.00
5.	82	1.68	49	2.06
6.	10	1.41	8	.82
7.	19	1.14	8	2.00
		YAKIMA VALLEY JUNIOR COLLEGE		
8.	47	1.63	49	1.03
	374	12.45	232	12.74
M	46.75	1.56	29.00	1.59

$M_{X_T} = 38.88$ $M_{Y_T} = 1.57$

APPENDIX B

MATCHING DATA FOR EXPERIMENTAL AND CONTROL GROUPS

FOUR-YEAR COLLEGES OR UNIVERSITIES

Group A Experimental						Group C Control					
Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended	Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended
					EASTERN WASHINGTON STATE COLLEGE						
1.	M	Undec.	2.05	1.6	Large	1.	M	Art	2.07	1.6	Large
2.	F	Soc.Wk.	2.42	2.0	Large	2.	F	Soc.Wk.	2.36	2.0	Large
3.	M	Bus.Adm.	2.22	1.9	Large	3.	M	Bus.Adm.	2.25	1.8	Large
4.	F	History	3.28	2.8	Large	4.	F	History	3.47	2.7	Large
					GONZAGA UNIVERSITY						
5.	M	Undec.	2.03	995	Large	5.	M	Undec.	2.03	1033	Large
6.	M	Business	2.23	676	Large	6.	M	Business	2.29	829	Large
7.	F	English	3.86	1170	Large	7.	F	English	3.83	1110	Large
8.	M	Math.	2.56	992	Small	8.	M	Math	2.75	1014	Small
9.	M	Journal.	2.14	1061	Large	9.	F	Journal.	2.45	900	Large
10.	M	Music	1.88	853	Medium	10.	M	Music	2.37	1051	Medium
11.	F	Pre-Dent.	3.58	879	Large	11.	F	Med.Tech.	3.04	998	Medium
12.	F	Undec.	3.66	1230	Large	12.	F	Undec.	3.65	1134	Large
13.	F	English	2.68	816	Medium	13.	F	English	2.33	952	Large
14.	M	Lib.Arts	2.33	1037	Large	14.	M	Lib.Arts	2.48	944	Large
15.	M	Pers.Mgmt	2.71	760	Large	15.	M	Pol.Sci.	2.38	921	Large
16.	F	Undec.	3.15	988	Large	16.	F	English	3.01	1083	Medium
17.	F	Science	2.91	840	Medium	17.	F	Biology	2.69	1056	Medium
18.	F	Undec.	3.50	881	Large	18.	F	Undec.	3.45	1060	Large
					MONTANA STATE COLLEGE						
19.	M	Civ.Eng	94.87%	650	Small	19.	M	Civ.Eng.	3.10	600	Small
20.	F	Home Ec.	2.33	431	Medium	20.	F	Home Ec.	2.80	515	Medium
21.	F	Sec. Ed.	2.41	400	Small	21.	F	Sec. Ed.	2.20	550	Small

APPENDIX B (Cont'd)

Group A Experimental						GROUP C Control					
Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended	Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended
					MONTANA STATE UNIVERSITY						
22.	F	Phy Ed.	2.74		Large	22.	F	Phy. Ed.			Large
					PACIFIC LUTHERAN UNIVERSITY						
23.	M	Undec.	2.25	493	Large	23.	M	Undec.	1.91	51	Small
					UNIVERSITY OF PORTLAND						
24.	M	Lib.Arts	1.80	314	Medium	24.	M	Lib. Arts	1.80	468	Small
					SEATTLE UNIVERSITY						
25.	F	Pre-Maj.	2.18	273	Small	25.	F	Pre-Maj.	2.10	361	Unknown
26.	M	Pre-Maj.	2.00	493	Medium	26.	M	Pre-Maj.	2.14	483	Medium
					SCRIPPS COLLEGE						
27.	F	Eng.Lit.	3.50	515	Small	27.	F	Art.Hist.	2.82	502	Small
					WASHINGTON STATE UNIVERSITY						
28.	M	Soc.Sci.	2.82	5	Large	28.	M	History	2.77	6	Large
29.	F	Elem.Ed.	3.15	7	Large	29.	F	Elem.Ed.	3.42	5	Large
30.	F	Elem.Ed.	3.02	1	Large	30.	F	Home Ec.	2.47	3	Large
31.	F	Soc. Wk.	3.10	5	Large	31.	F	Soc.	2.91	8	Large
32.	M	Pre-Dent.	2.60	5	Large	32.	M	Pre-Dent.	2.87	5	Large
33.	M	General	3.30	9	Large	33.	M	Undec.	3.85	6	Large
34.	F	Psy.	2.94	2	Large	34.	F	Undec.	2.83	3	Large
35.	M	Mech.Eng	2.67	5	Large	35.	M	Arch.Eng.	2.71	2	Large
36.	F	Pharmacy	3.58	7	Large	36.	F	Math	3.33	7	Large
37.	F	Econ.	3.20	611	Small	37.	F	Psy.	3.27	Unk.	Small
38.	F	Econ.	2.94	6	Medium	38.	F	Commerce	3.06	4	Medium
39.	F	Undec.	3.54	8	Medium	39.	F	General	3.20	9	Medium
					UNIVERSITY OF IDAHO						
40.	M	Bus.Adm.	3.32	451	Medium	40.	M	Geol.Eng.	3.00	460	Medium
41.	F	Bus. Ed.	2.50	Unk.	Unknown	41.	F	Bus. Ed.	2.80	8	Medium

Group A Experimental						Group C Control					
Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended	Student No.	Sex	Major College Course	High School G.P.A.	Mental Ability Measurement	Size High School Attended
					UNIVERSITY OF OREGON						
42.	F	Med.Tech.	2.82	499	Large	42.	F	Med.Tech.	2.85	547	Large
					UNIVERSITY OF THE PACIFIC						
43.	F	Undec.	2.84	470	Small	43.	F	Undec.	2.80	476	Small

COMMUNITY OR JUNIOR COLLEGES
(Two-year Instruction -- No Freshman Orientation Period)

Group B Experimental						Group D Control					
					NORTH IDAHO JUNIOR COLLEGE						
1.	F	General	2.24	419	Small	1.	F	General	2.90	Unk	Small
					SPOKANE COMMUNITY COLLEGE						
2.	M	Business	1.71	Unk	Large	2.	M	Business	1.72	Unk	Large
3.	F	Bus. Ed.	2.15	Unk	Large	3.	F	Business	2.09	Unk	Large
4.	M	Business	1.39	Unk	Large	4.	M	Lang Arts	1.40	Unk	Large
5.	M	Science	2.05	56%	Medium	5.	M	Data Proc	2.08	Unk	Medium
6.	M	Account.	1.55	Unk	Large	6.	M	Bus.Ed.	1.63	Unk	Large
7.	M	English	1.91	59%	Large	7.	M	Elect.	1.92	Unk	Large
					YAKIMA VALLEY JUNIOR COLLEGE						
8.	M	Undec.	1.90	Unk	Large	8.	M	Bus.Adm.	1.90	Unk.	Large

Scores under "Mental Ability Measurement" differ in form because of the different tests and/or reporting procedures used by each college or university. Large high schools were considered to be those which enroll more than 1000; medium high schools enroll from 500 to 999; and small high schools enroll fewer than 500.